**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**
ENVIRONMENTAL SCIENCE CENTER
701 MAPES ROAD
FORT MEADE, MD 20755-5350



DATE : August 11, 2003

SUBJECT: Region III Data QA Review

FROM : Fredrick Foreman
Region III ESAT RPO (3EA20)

TO : Lorie Baker
Regional Project Manager (3HS34)

Attached is the organic data validation report for the Elkton Farm site (Case #: 31736, SDG#: C01K1) completed by the Region III Environmental Services Assistance Team (ESAT) contractor under the direction of Region III EAID.

If you have any questions regarding this review, please call me at (410) 305-2629.

Attachments

cc: Chris Hartman (MDE)

TO File #: 0011 TDF#: 0719

**ANALYTICAL SERVICES AND QUALITY ASSURANCE BRANCH**

Lockheed Martin Environmental Services
US EPA Environmental Science Center
701 Mapes Road Ft. Meade, MD 20755-5350
Telephone 410-305-3037 Facsimile 410-305-3597

LOCKHEED MARTIN

**DATE:** August 7, 2003

**SUBJECT:** Level M3 Organic Data Validation for 31736
SDG: C01K1
Site: Elkton Farm

**FROM:** Douglas Gardner
Organic Data Reviewer

Mahboobeh Mecanic
Senior Oversight Chemist

**TO:** Fredrick Foreman
ESAT Region 3 Project Officer

## OVERVIEW

Case 31736, Sample Delivery Groups (SDG) C01K1, consisted of ten (10) aqueous samples submitted to Mitkem Corporation (MITKEM) for volatile, semivolatile and pesticide/PCB analyses. The sample set included one (1) trip blank, one (1) field blank and one (1) field duplicate pair. The trip blank was analyzed solely for volatiles. Samples were analyzed according to Contract Laboratory Program (CLP) Statement of Work (SOW) OLM04.3 through Routine Analytical Services (RAS) program.

## SUMMARY

Data were validated according to Region III Modifications to the National Functional Guidelines for Organic Data Review, Level M3. All samples were successfully analyzed for all target compounds except those qualified "R" as noted in "MAJOR PROBLEM" section.

## MAJOR PROBLEM

- The Response Factor (RF) was less than 0.05 for pentachlorophenol in the semivolatile continuing calibration dated 06/10/03. No positive results were reported for this compound. Quantitation limits for pentachlorophenol were rejected and qualified "R" in samples C01K1 through C01K6. See Data Summary Forms (DSFs) in Appendix B.

## MINOR PROBLEMS

- Several compounds failed precision criteria [Percent Relative Standard Deviation (%RSD) and/or Percent Difference (% D)] in the volatile and semivolatile initial and/or continuing calibrations. No positive results were reported for these compounds. Quantitation limits for compounds with a %D greater than fifty percent (>50%) were qualified "UJ". See DSFs in Appendix B.

- Positive results for Pesticide/PCB compounds with percent differences (%D) greater than twenty-five percent (>25%) between the two (2) analytical columns were qualified "J". See DSFs in Appendix B.

**NOTES**

- Tetrachloroethene was the only blank contaminant found in the analyses of the trip, method or storage blanks. No data were qualified based on this blank contaminant.

- Non-spiked compounds, other than blank contaminants, were detected in the analyses of samples C01K6 and/or the MS/MSD analyses of these samples. The results and precision estimates are tabled below. Concentration units are µg/L.

| Compound | C01K6 | C01K6MS | C01K6MSD | %RSD |
|---|---|---|---|---|
| 2-butanone | ND | 2 J | 1 J | 67+ |
| tetrachloroethene | ND | 4 J | 3 J | 29+ |
| bis(2-ethylhexyl)phthalate* | 1 J | 1 J | 1 J | 0 |

%RSD = Percent Relative Standard Deviation ND = Not detected
+ = Relative Percent Difference

- Heptachlor epoxide exceeded calibration range in the initial pesiticide/PCB analyses of samples C01K1 and C01K2. This compound was not detected in the five-fold (5X) dilution analyses of these samples. There are two (2) huge tailing peaks in samples C01K1 and C01K2. The two peaks were unaffected by repeated florisil cleanup. The detected heptachlor epoxide in the initial analyses may be a false positive. Results for this compound in samples C01K1 and C01K2 were reported from diluted analyses on the DSF by reviewer. Contract Required Quantitation Limits (CRQLs) for heptachlor epoxide are elevated in these samples. See laboratory case narrative in Appendix E.

- Semivolatile Matrix Spike/Matrix Spike Duplicate (MS/MSD) analyses of sample C01K6 had recovery of 4-nitrophenol above upper QC limits. No sample data were qualified based on these recovery outliers.

- Due to inconsistent recoveries in the pesticide/PCB MS/MSD analyses of sample C01K6, the RPD of spike compound 4,4'-DDT was outside QC limits. No sample data were qualified based on this RPD outlier.

- Sample C01K5 is a field duplicate of sample C01K8. Results for this field duplicate pair were comparable for those compounds detected above CRQLs.

- Tentatively identified compounds (TICs) were reviewed during data validation. Semivolatile analyses of samples C01K6 and C01K8 had one or more TICs reported. No other samples had TICs reported. Laboratory prepared TIC Form Is for samples C01K6 and C01K8 are included in Appendix C.

- Compounds detected below CRQLs were qualified "J" on DSFs in Appendix B.

All data for Case 31736, SDG C01K1, were reviewed in accordance with Region III Modifications to the National Functional Guidelines for Organic Data Review, September 1994.

## ATTACHMENTS

1) Appendix A Glossary of Data Qualifier Terms
2) Appendix B Data Summary Forms
3) Appendix C Tentatively Identified Compounds
4) Appendix D Chain-of-Custody Records
5) Appendix E Laboratory Case Narrative

DCN:31736.wpd

# Appendix A

Glossary of Data Qualifiers

## GLOSSARY OF DATA QUALIFIER CODES (ORGANIC)

CODES RELATED TO IDENTIFICATION
(confidence concerning presence or absence of compounds)

U = Not detected. The associated number indicates approximate sample concentration necessary to be detected.

NO CODE = Confirmed identification.

B = Not detected substantially above the level reported in laboratory or field blanks.

R = Unusable result. Analyte may or may not be present in the sample. Supporting data necessary to confirm result.

N = Tentative identification. Consider present. Special methods may be needed to confirm its presence or absence in future sampling efforts.

CODES RELATED TO QUANTITATION
(can be used for both positive results and sample quantitation limits):

J = Analyte present. Reported value may not be accurate or precise.

K = Analyte present. Reported value may be biased high. Actual value is expected to be lower.

L = Analyte present. Reported value may be biased low. Actual value is expected to be higher.

UJ = Not detected, quantitation limit may be inaccurate or imprecise.

UL = Not detected, quantitation limit is probably higher.

OTHER CODES

NJ = Qualitative identification questionable due to poor resolution. Presumptively present at approximate quantity.

Q = No analytical result.

# Appendix B

Data Summary Forms

**DATA SUMMARY FORM: VOLATILES**



Case #: 31736
Site :
Lab. :

SDG : C01K1
ELKTON FARM
MITKEM

Number of Soil Samples : 0
Number of Water Samples : 10

| Sample Number : | | C01K1 | | C01K2 | | C01K3 | | C01K4 | | C01K5 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sampling Location : | | GWT1 | | GWT2 | | GWT3 | | MW1 | | MW2 | |
| Field QC: | | | | | | | | | | Duplicate(C01K8) | |
| Matrix : | | Water | | Water | | Water | | Water | | Water | |
| Units : | | ug/L | | ug/L | | ug/L | | ug/L | | ug/L | |
| Date Sampled : | | 05/21/2003 | | 05/21/2003 | | 05/21/2003 | | 05/21/2003 | | 05/21/2003 | |
| Time Sampled : | | 09:30 | | 10:00 | | 10:30 | | 08:50 | | 09:40 | |
| pH : | | <2 | | <2 | | <2 | | <2 | | <2 | |
| Dilution Factor : | | 1.0 | | 1.0 | | 1.0 | | 1.0 | | 1.0 | |
| Volatile Compound | CRQL | Result | Flag | Result | Flag | Result | Flag | Result | Flag | Result | Flag |
| Dichlorodifluoromethane | 10 | | | | | | | | | | |
| Chloromethane | 10 | | | | | | | | | | |
| *Vinyl Chloride | 10 | | | | | | | | | | |
| Bromomethane | 10 | | | | | | | | | | |
| Chloroethane | 10 | | | | | | | | | | |
| Trichlorofluoromethane | 10 | | | | | | | | | | |
| *1,1-Dichloroethene | 10 | | | | | | | | | | |
| 1,1,2-Trichloro-1,2,2-trifluoroethane | 10 | | | | | | | | | | |
| Acetone | 10 | | | | | | | | | | |
| Carbon Disulfide | 10 | | | | | | | | | | |
| Methyl Acetate | 10 | | | | | | | | | | |
| *Methylene Chloride | 10 | | | | | | | | | | |
| trans-1,2-Dichloroethene | 10 | | | | | | | | | | |
| Methyl tert-Butyl Ether | 10 | | UJ | | UJ | | UJ | | UJ | | UJ |
| 1,1-Dichloroethane | 10 | | | | | | | | | | |
| cis-1,2-Dichloroethene | 10 | | | | | | | | | 5 | J |
| *2-Butanone | 10 | | | | | | | | | | |
| Chloroform | 10 | | | | | | | | | | |
| *1,1,1-Trichloroethane | 10 | | | | | | | | | | |
| Cyclohexane | 10 | | | | | | | | | | |
| *Carbon Tetrachloride | 10 | | | | | | | | | | |
| *Benzene | 10 | | | | | | | | | | |
| *1,2-Dichloroethane | 10 | | | | | | | | | | |
| Trichloroethene | 10 | | | | | | | | | 190 | |
| Methylcyclohexane | 10 | | | | | | | | | | |
| *1,2-Dichloropropane | 10 | | | | | | | | | | |
| Bromodichloromethane | 10 | | | | | | | | | | |
| cis-1,3-Dichloropropene | 10 | | | | | | | | | | |
| 4-Methyl-2-pentanone | 10 | | | 1 | J | | | | | | |
| *Toluene | 10 | | | | | | | | | | |
| trans-1,3-Dichloropropene | 10 | | | | | | | | | | |
| 1,1,2-Trichloroethane | 10 | | | | | | | | | 2 | J |
| *Tetrachloroethene | 10 | | | | | | | | | | |

CRQL = Contract Required Quantitation Limit
*Action Level Exists
SEE NARRATIVE FOR CODE DEFINITIONS
To calculate sample quantitation limits: (CRQL * Dilution Factor)
Revised 09/99

Case #: 31736 SDG : C01K1
Site : ELKTON FARM
Lab. : MITKEM

| Sample Number : | | C01K1 | | C01K2 | | C01K3 | | C01K4 | | C01K5 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sampling Location : | | GWT1 | | GWT2 | | GWT3 | | MW1 | | MW2 | |
| Field QC: | | | | | | | | | | Duplicate(C01K8) | |
| Matrix : | | Water | | Water | | Water | | Water | | Water | |
| Units : | | ug/L | | ug/L | | ug/L | | ug/L | | ug/L | |
| Date Sampled : | | 05/21/2003 | | 05/21/2003 | | 05/21/2003 | | 05/21/2003 | | 05/21/2003 | |
| Time Sampled : | | 09:30 | | 10:00 | | 10:30 | | 08:50 | | 09:40 | |
| pH : | | <2 | | <2 | | <2 | | <2 | | <2 | |
| Dilution Factor : | | 1.0 | | 1.0 | | 1.0 | | 1.0 | | 1.0 | |
| Volatile Compound | CRQL | Result | Flag | Result | Flag | Result | Flag | Result | Flag | Result | Flag |
| 2-Hexanone | 10 | | | | | | | | | | |
| Dibromochloromethane | 10 | | | | | | | | | | |
| 1,2-Dibromoethane | 10 | | | | | | | | | | |
| *Chlorobenzene | 10 | | | | | | | | | | |
| *Ethylbenzene | 10 | | | | | | | | | | |
| Xylenes (total) | 10 | | | | | | | | | | |
| *Styrene | 10 | | | | | | | | | | |
| Bromoform | 10 | | | | | | | | | | |
| Isopropylbenzene | 10 | | | | | | | | | | |
| 1,1,2,2-Tetrachloroethane | 10 | | | | | | | | | | |
| *1,3-Dichlorobenzene | 10 | | | | | | | | | | |
| *1,4-Dichlorobenzene | 10 | | | | | | | | | | |
| 1,2-Dichlorobenzene | 10 | | | | | | | | | | |
| 1,2-Dibromo-3-chloropropane | 10 | | | | | | | | | | |
| 1,2,4-Trichlorobenzene | 10 | | | | | | | | | | |

CRQL = Contract Required Quantitation Limit *Action Level Exists SEE NARRATIVE FOR CODE DEFINITIONS

To calculate sample quantitation limits: (CRQL * Dilution Factor) Revised 09/99

Case #: 31736 SDG : C01K1
Site : ELKTON FARM
Lab. : MITKEM

| Sample Number : | | C01K6 | | C01K7 | | C01K8 | | C01K9 | | C01L0 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sampling Location : | | MW3 | | MW4 | | MW5 | | MW6 | | MW7 | |
| Field QC: | | | | | | Duplicate(C01K5) | | Field Blank | | Trip Blank | |
| Matrix : | | Water | | Water | | Water | | Water | | Water | |
| Units : | | ug/L | | ug/L | | ug/L | | ug/L | | ug/L | |
| Date Sampled : | | 05/21/2003 | | 05/21/2003 | | 05/21/2003 | | 05/21/2003 | | 05/21/2003 | |
| Time Sampled : | | 11:00 | | 11:15 | | 09:40 | | 11:45 | | 10:00 | |
| pH : | | <2 | | <2 | | <2 | | <2 | | <2 | |
| Dilution Factor : | | 1.0 | | 1.0 | | 1.0 | | 1.0 | | 1.0 | |
| Volatile Compound | CRQL | Result | Flag | Result | Flag | Result | Flag | Result | Flag | Result | Flag |
| Dichlorodifluoromethane | 10 | | | | | | | | | | |
| Chloromethane | 10 | | | | | | | | | | |
| *Vinyl Chloride | 10 | | | | | | | | | | |
| Bromomethane | 10 | | | | | | | | | | |
| Chloroethane | 10 | | | | | | | | | | |
| Trichlorofluoromethane | 10 | | | | | | | | | | |
| *1,1-Dichloroethene | 10 | | | | | | | | | | |
| 1,1,2-Trichloro-1,2,2-trifluoroethane | 10 | | | | | | | | | | |
| Acetone | 10 | | | | | | | | | | |
| Carbon Disulfide | 10 | | | | | | | | | | |
| Methyl Acetate | 10 | | | | | | | | | | |
| *Methylene Chloride | 10 | | | | | | | | | | |
| trans-1,2-Dichloroethene | 10 | | | | | | | | | | |
| Methyl tert-Butyl Ether | 10 | | UJ | | UJ | | UJ | | UJ | | UJ |
| 1,1-Dichloroethane | 10 | | | | | | | | | | |
| cis-1,2-Dichloroethene | 10 | | | | | 5 | J | | | | |
| *2-Butanone | 10 | | | | | | | | | | |
| Chloroform | 10 | | | | | | | | | | |
| *1,1,1-Trichloroethane | 10 | | | | | | | | | | |
| Cyclohexane | 10 | | | | | | | | | | |
| *Carbon Tetrachloride | 10 | | | | | | | | | | |
| *Benzene | 10 | | | | | | | | | | |
| *1,2-Dichloroethane | 10 | | | | | | | | | | |
| Trichloroethene | 10 | | | | | 170 | | | | | |
| Methylcyclohexane | 10 | | | | | | | | | | |
| *1,2-Dichloropropane | 10 | | | | | | | | | | |
| Bromodichloromethane | 10 | | | | | | | | | | |
| cis-1,3-Dichloropropene | 10 | | | | | | | | | | |
| 4-Methyl-2-pentanone | 10 | | | | | | | | | | |
| *Toluene | 10 | | | | | | | | | | |
| trans-1,3-Dichloropropene | 10 | | | | | | | | | | |
| 1,1,2-Trichloroethane | 10 | | | | | 1 | J | | | | |
| *Tetrachloroethene | 10 | | | | | | | | | | |

CRQL = Contract Required Quantitation Limit *Action Level Exists SEE NARRATIVE FOR CODE DEFINITIONS

To calculate sample quantitation limits: (CRQL * Dilution Factor) Revised 09/99

Case #: 31736 SDG : C01K1
Site : ELKTON FARM
Lab. : MITKEM

| Sample Number : | | C01K6 | | C01K7 | | C01K8 | | C01K9 | | C01L0 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sampling Location : | | MW3 | | MW4 | | MW5 | | MW6 | | MW7 | |
| Field QC: | | | | | | Duplicate(C01K5) | | Field Blank | | Trip Blank | |
| Matrix : | | Water | | Water | | Water | | Water | | Water | |
| Units : | | ug/L | | ug/L | | ug/L | | ug/L | | ug/L | |
| Date Sampled : | | 05/21/2003 | | 05/21/2003 | | 05/21/2003 | | 05/21/2003 | | 05/21/2003 | |
| Time Sampled : | | 11:00 | | 11:15 | | 09:40 | | 11:45 | | 10:00 | |
| pH : | | <2 | | <2 | | <2 | | <2 | | <2 | |
| Dilution Factor : | | 1.0 | | 1.0 | | 1.0 | | 1.0 | | 1.0 | |
| Volatile Compound | CRQL | Result | Flag | Result | Flag | Result | Flag | Result | Flag | Result | Flag |
| 2-Hexanone | 10 | | | | | | | | | | |
| Dibromochloromethane | 10 | | | | | | | | | | |
| 1,2-Dibromoethane | 10 | | | | | | | | | | |
| *Chlorobenzene | 10 | | | | | | | | | | |
| *Ethylbenzene | 10 | | | | | | | | | | |
| Xylenes (total) | 10 | | | | | | | | | | |
| *Styrene | 10 | | | | | | | | | | |
| Bromoform | 10 | | | | | | | | | | |
| Isopropylbenzene | 10 | | | | | | | | | | |
| 1,1,2,2-Tetrachloroethane | 10 | | | | | | | | | | |
| *1,3-Dichlorobenzene | 10 | | | | | | | | | | |
| *1,4-Dichlorobenzene | 10 | | | | | | | | | | |
| 1,2-Dichlorobenzene | 10 | | | | | | | | | | |
| 1,2-Dibromo-3-chloropropane | 10 | | | | | | | | | | |
| 1,2,4-Trichlorobenzene | 10 | | | | | | | | | | |

CRQL = Contract Required Quantitation Limit *Action Level Exists SEE NARRATIVE FOR CODE DEFINITIONS

To calculate sample quantitation limits: (CRQL * Dilution Factor) Revised 09/99

Case #: 31736 SDG : C01K1 Number of Soil Samples : 0

Site : ELKTON FARM Number of Water Samples : 9

Lab. : MITKEM

| Sample Number : | | C01K1 | | C01K2 | | C01K3 | | C01K4 | | C01K5 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sampling Location : | | GWT1 | | GWT2 | | GWT3 | | MW1 | | MW2 | |
| Field QC: | | | | | | | | | | Duplicate(C01K8) | |
| Matrix : | | Water | | Water | | Water | | Water | | Water | |
| Units : | | ug/L | | ug/L | | ug/L | | ug/L | | ug/L | |
| Date Sampled : | | 05/21/2003 | | 05/21/2003 | | 05/21/2003 | | 05/21/2003 | | 05/21/2003 | |
| Time Sampled : | | 09:30 | | 10:00 | | 10:30 | | 08:50 | | 09:40 | |
| Dilution Factor : | | 1.0 | | 1.0 | | 1.0 | | 1.0 | | 1.0 | |
| Semivolatile Compound | CRQL | Result | Flag | Result | Flag | Result | Flag | Result | Flag | Result | Flag |
| Benzaldehyde | 10 | | | | | | | | | | |
| Phenol | 10 | | | | | | | | | | |
| bis-(2-Chloroethyl) ether | 10 | | | | | | | | | | |
| 2-Chlorophenol | 10 | | | | | | | | | | |
| 2-Methylphenol | 10 | | | | | | | | | | |
| 2,2'-oxybis(1-Chloropropane) | 10 | | | | | | | | | | |
| Acetophenone | 10 | | | | | | | | | | |
| 4-Methylphenol | 10 | | | | | | | | | | |
| N-Nitroso-di-n-propylamine | 10 | | | | | | | | | | |
| Hexachloroethane | 10 | | | | | | | | | | |
| Nitrobenzene | 10 | | | | | | | | | | |
| Isophorone | 10 | | | | | | | | | | |
| 2-Nitrophenol | 10 | | | | | | | | | | |
| 2,4-Dimethylphenol | 10 | | | | | | | | | | |
| bis(2-Chloroethoxy)methane | 10 | | | | | | | | | | |
| 2,4-Dichlorophenol | 10 | | | | | | | | | | |
| Naphthalene | 10 | | | | | | | | | | |
| 4-Chloroaniline | 10 | | | | | | | | | | |
| Hexachlorobutadiene | 10 | | | | | | | | | | |
| Caprolactam | 10 | | | | | | | | | | |
| 4-Chloro-3-methylphenol | 10 | | | | | | | | | | |
| 2-Methylnaphthalene | 10 | | | | | | | | | | |
| Hexachlorocyclopentadiene | 10 | | | | | | | | | | |
| 2,4,6-Trichlorophenol | 10 | | | | | | | | | | |
| 2,4,5-Trichlorophenol | 25 | | | | | | | | | | |
| 1,1'-Biphenyl | 10 | | | | | | | | | | |
| 2-Chloronaphthalene | 10 | | | | | | | | | | |
| 2-Nitroaniline | 25 | | | | | | | | | | |
| Dimethylphthalate | 10 | | | | | | | | | | |
| 2,6-Dinitrotoluene | 10 | | | | | | | | | | |
| Acenaphthylene | 10 | | | | | | | | | | |
| 3-Nitroaniline | 25 | | | | | | | | | | |

CRQL = Contract Required Quantitation Limit *Action Level Exists SEE NARRATIVE FOR CODE DEFINITIONS

To calculate sample quantitation limits: (CRQL * Dilution Factor) Revised 09/99

Case #: 31736
Site :
Lab. :

SDG : C01K1
ELKTON FARM
MITKEM

| Sample Number : | | C01K1 | | C01K2 | | C01K3 | | C01K4 | | C01K5 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sampling Location : | | GWT1 | | GWT2 | | GWT3 | | MW1 | | MW2 | |
| Field QC: | | | | | | | | | | Duplicate(C01K8) | |
| Matrix : | | Water | | Water | | Water | | Water | | Water | |
| Units : | | ug/L | | ug/L | | ug/L | | ug/L | | ug/L | |
| Date Sampled : | | 05/21/2003 | | 05/21/2003 | | 05/21/2003 | | 05/21/2003 | | 05/21/2003 | |
| Time Sampled : | | 09:30 | | 10:00 | | 10:30 | | 08:50 | | 09:40 | |
| Dilution Factor : | | 1.0 | | 1.0 | | 1.0 | | 1.0 | | 1.0 | |
| Semivolatile Compound | CRQL | Result | Flag | Result | Flag | Result | Flag | Result | Flag | Result | Flag |
| Acenaphthene | 10 | | | | | | | | | | |
| 2,4-Dinitrophenol | 25 | | | | | | | | | | |
| 4-Nitrophenol | 25 | | | | | | | | | | |
| Dibenzofuran | 10 | | | | | | | | | | |
| 2,4-Dinitrotoluene | 10 | | | | | | | | | | |
| Diethylphthalate | 10 | | | | | | | | | | |
| Fluorene | 10 | | | | | | | | | | |
| 4-Chlorophenyl-phenyl ether | 10 | | | | | | | | | | |
| 4-Nitroaniline | 25 | | | | | | | | | | |
| 4,6-Dinitro-2-methylphenol | 25 | | | | | | | | | | |
| N-Nitrosodiphenylamine | 10 | | | | | | | | | | |
| 4-Bromophenyl-phenylether | 10 | | | | | | | | | | |
| *Hexachlorobenzene | 10 | | | | | | | | | | |
| Atrazine | 10 | | | | | | | | | | |
| *Pentachlorophenol | 25 | | R | | R | | R | | R | | R |
| Phenanthrene | 10 | | | | | | | | | | |
| Anthracene | 10 | | | | | | | | | | |
| Carbazole | 10 | | | | | | | | | | |
| Di-n-butylphthalate | 10 | | | | | | | | | | |
| Fluoranthene | 10 | | | | | | | | | | |
| Pyrene | 10 | | | | | | | | | | |
| Butylbenzylphthalate | 10 | | | | | | | | | | |
| 3,3'-Dichlorobenzidine | 10 | | | | | | | | | | |
| Benzo(a)anthracene | 10 | | | | | | | | | | |
| Chrysene | 10 | | | | | | | | | | |
| bis(2-Ethylhexyl)phthalate | 10 | 3 | J | 1 | J | 1 | J | 1 | J | 2 | J |
| Di-n-octylphthalate | 10 | | | | | | | | | | |
| Benzo(b)fluoranthene | 10 | | | | | | | | | | |
| Benzo(k)fluoranthene | 10 | | | | | | | | | | |
| Benzo(a)pyrene | 10 | | | | | | | | | | |
| Indeno(1,2,3-cd)pyrene | 10 | | | | | | | | | | |
| Dibenzo(a,h)anthracene | 10 | | | | | | | | | | |
| Benzo(g,h,i)perylene | 10 | | | | | | | | | | |

CRQL = Contract Required Quantitation Limit
*Action Level Exists
SEE NARRATIVE FOR CODE DEFINITIONS
To calculate sample quantitation limits: (CRQL * Dilution Factor)
Revised 09/99

Case #: 31736
Site :
Lab. :

SDG : C01K1
ELKTON FARM
MITKEM

| Sample Number : | | C01K6 | | C01K7 | | C01K8 | | C01K9 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sampling Location : | | MW3 | | MW4 | | MW5 | | MW6 | | | |
| Field QC: | | | | | | Duplicate(C01K5) | | Field Blank | | | |
| Matrix : | | Water | | Water | | Water | | Water | | | |
| Units : | | ug/L | | ug/L | | ug/L | | ug/L | | | |
| Date Sampled : | | 05/21/2003 | | 05/21/2003 | | 05/21/2003 | | 05/21/2003 | | | |
| Time Sampled : | | 11:00 | | 11:15 | | 09:40 | | 11:45 | | | |
| Dilution Factor : | | 1.0 | | 1.0 | | 1.0 | | 1.0 | | | |
| Semivolatile Compound | CRQL | Result | Flag | Result | Flag | Result | Flag | Result | Flag | Result | Flag |
| Benzaldehyde | 10 | | | | | | | | | | |
| Phenol | 10 | | | | | | | | | | |
| bis-(2-Chloroethyl) ether | 10 | | | | | | | | | | |
| 2-Chlorophenol | 10 | | | | | | | | | | |
| 2-Methylphenol | 10 | | | | | | | | | | |
| 2,2'-oxybis(1-Chloropropane) | 10 | | | | | | | | | | |
| Acetophenone | 10 | | | | | | | | | | |
| 4-Methylphenol | 10 | | | | | | | | | | |
| N-Nitroso-di-n-propylamine | 10 | | | | | | | | | | |
| Hexachloroethane | 10 | | | | | | | | | | |
| Nitrobenzene | 10 | | | | | | | | | | |
| Isophorone | 10 | | | | | | | | | | |
| 2-Nitrophenol | 10 | | | | | | | | | | |
| 2,4-Dimethylphenol | 10 | | | | | | | | | | |
| bis(2-Chloroethoxy)methane | 10 | | | | | | | | | | |
| 2,4-Dichlorophenol | 10 | | | | | | | | | | |
| Naphthalene | 10 | | | | | | | | | | |
| 4-Chloroaniline | 10 | | | | UJ | | UJ | | UJ | | |
| Hexachlorobutadiene | 10 | | | | | | | | | | |
| Caprolactam | 10 | | | | | | | | | | |
| 4-Chloro-3-methylphenol | 10 | | | | | | | | | | |
| 2-Methylnaphthalene | 10 | | | | | | | | | | |
| Hexachlorocyclopentadiene | 10 | | | | | | | | | | |
| 2,4,6-Trichlorophenol | 10 | | | | | | | | | | |
| 2,4,5-Trichlorophenol | 25 | | | | | | | | | | |
| 1,1'-Biphenyl | 10 | | | | | | | | | | |
| 2-Chloronaphthalene | 10 | | | | | | | | | | |
| 2-Nitroaniline | 25 | | | | | | | | | | |
| Dimethylphthalate | 10 | | | | | | | | | | |
| 2,6-Dinitrotoluene | 10 | | | | | | | | | | |
| Acenaphthylene | 10 | | | | | | | | | | |
| 3-Nitroaniline | 25 | | | | | | | | | | |

CRQL = Contract Required Quantitation Limit
To calculate sample quantitation limits: (CRQL * Dilution Factor)

*Action Level Exists

SEE NARRATIVE FOR CODE DEFINITIONS

Case #: 31736 SDG : C01K1
Site : ELKTON FARM
Lab. : MITKEM

| Sample Number : | | C01K6 | | C01K7 | | C01K8 | | C01K9 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sampling Location : | | MW3 | | MW4 | | MW5 | | MW6 | | | |
| Field QC: | | | | | | Duplicate(C01K5) | | Field Blank | | | |
| Matrix : | | Water | | Water | | Water | | Water | | | |
| Units : | | ug/L | | ug/L | | ug/L | | ug/L | | | |
| Date Sampled : | | 05/21/2003 | | 05/21/2003 | | 05/21/2003 | | 05/21/2003 | | | |
| Time Sampled : | | 11:00 | | 11:15 | | 09:40 | | 11:45 | | | |
| Dilution Factor : | | 1.0 | | 1.0 | | 1.0 | | 1.0 | | | |
| Semivolatile Compound | CRQL | Result | Flag | Result | Flag | Result | Flag | Result | Flag | Result | Flag |
| Acenaphthene | 10 | | | | | | | | | | |
| 2,4-Dinitrophenol | 25 | | | | | | | | | | |
| 4-Nitrophenol | 25 | | | | | | | | | | |
| Dibenzofuran | 10 | | | | | | | | | | |
| 2,4-Dinitrotoluene | 10 | | | | | | | | | | |
| Diethylphthalate | 10 | | | | | | | | | | |
| Fluorene | 10 | | | | | | | | | | |
| 4-Chlorophenyl-phenyl ether | 10 | | | | | | | | | | |
| 4-Nitroaniline | 25 | | | | | | | | | | |
| 4,6-Dinitro-2-methylphenol | 25 | | | | | | | | | | |
| N-Nitrosodiphenylamine | 10 | | | | | | | | | | |
| 4-Bromophenyl-phenylether | 10 | | | | | | | | | | |
| *Hexachlorobenzene | 10 | | | | | | | | | | |
| Atrazine | 10 | | | | | | | | | | |
| *Pentachlorophenol | 25 | | R | | | | | | | | |
| Phenanthrene | 10 | | | | | | | | | | |
| Anthracene | 10 | | | | | | | | | | |
| Carbazole | 10 | | | | | | | | | | |
| Di-n-butylphthalate | 10 | | | | | | | | | | |
| Fluoranthene | 10 | | | | | | | | | | |
| Pyrene | 10 | | | | | | | | | | |
| Butylbenzylphthalate | 10 | | | | | | | | | | |
| 3,3'-Dichlorobenzidine | 10 | | | | | | | | | | |
| Benzo(a)anthracene | 10 | | | | | | | | | | |
| Chrysene | 10 | | | | | | | | | | |
| bis(2-Ethylhexyl)phthalate | 10 | 1 | J | | | | | | | | |
| Di-n-octylphthalate | 10 | | | | | | | | | | |
| Benzo(b)fluoranthene | 10 | | | | | | | | | | |
| Benzo(k)fluoranthene | 10 | | | | | | | | | | |
| Benzo(a)pyrene | 10 | | | | | | | | | | |
| Indeno(1,2,3-cd)pyrene | 10 | | | | | | | | | | |
| Dibenzo(a,h)anthracene | 10 | | | | | | | | | | |
| Benzo(g,h,i)perylene | 10 | | | | | | | | | | |

CRQL = Contract Required Quantitation Limit *Action Level Exists SEE NARRATIVE FOR CODE DEFINITIONS

To calculate sample quantitation limits: (CRQL * Dilution Factor) Revised 09/99

Case #: 31736 SDG : C01K1 Number of Soil Samples : 0
Site : ELKTON FARM Number of Water Samples : 9
Lab. : MITKEM

| Sample Number : | | C01K1 | | C01K2 | | C01K3 | | C01K4 | | C01K5 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sampling Location : | | GWT1 | | GWT2 | | GWT3 | | MW1 | | MW2 | |
| Field QC: | | | | | | | | | | Duplicate(C01K8) | |
| Matrix : | | Water | | Water | | Water | | Water | | Water | |
| Units : | | ug/L | | ug/L | | ug/L | | ug/L | | ug/L | |
| Date Sampled : | | 05/21/2003 | | 05/21/2003 | | 05/21/2003 | | 05/21/2003 | | 05/21/2003 | |
| Time Sampled : | | 09:30 | | 10:00 | | 10:30 | | 08:50 | | 09:40 | |
| Dilution Factor : | | 1.0 / 5.0 | | 1.0 / 5.0 | | 1.0 | | 1.0 | | 1.0 | |
| Pesticide/PCB Compound | CRQL | Result | Flag | Result | Flag | Result | Flag | Result | Flag | Result | Flag |
| alpha-BHC | 0.050 | | | | | | | | | | |
| beta-BHC | 0.050 | 0.071 | J | 0.044 | J | | | | | | |
| delta-BHC | 0.050 | | | | | | | | | | |
| *gamma-BHC (Lindane) | 0.050 | | | | | | | | | | |
| *Heptachlor | 0.050 | | | | | | | | | | |
| Aldrin | 0.050 | | | | | | | | | | |
| Heptachlor epoxide | 0.050 | + | | + | | | | | | | |
| Endosulfan I | 0.050 | | | | | | | | | | |
| Dieldrin | 0.10 | | | | | | | | | | |
| 4,4'-DDE | 0.10 | | | | | | | | | | |
| *Endrin | 0.10 | | | | | | | | | | |
| Endosulfan II | 0.10 | | | | | | | | | | |
| 4,4'-DDD | 0.10 | | | | | | | | | | |
| Endosulfan sulfate | 0.10 | | | | | | | | | | |
| 4,4'-DDT | 0.10 | | | | | | | | | | |
| *Methoxychlor | 0.50 | | | | | | | | | | |
| Endrin ketone | 0.10 | | | | | | | | | | |
| Endrin aldehyde | 0.10 | | | | | | | | | | |
| alpha-Chlordane | 0.050 | | | | | | | | | | |
| gamma-Chlordane | 0.050 | | | | | | | | | | |
| *Toxaphene | 5.0 | | | | | | | | | | |
| *Aroclor-1016 | 1.0 | | | | | | | | | | |
| *Aroclor-1221 | 2.0 | | | | | | | | | | |
| *Aroclor-1232 | 1.0 | | | | | | | | | | |
| *Aroclor-1242 | 1.0 | | | | | | | | | | |
| *Aroclor-1248 | 1.0 | | | | | | | | | | |
| *Aroclor-1254 | 1.0 | | | | | | | | | | |
| *Aroclor-1260 | 1.0 | | | | | | | | | | |

CRQL = Contract Required Quantitation Limit *Action Level Exists SEE NARRATIVE FOR CODE DEFINITIONS

+ = Result reported from dilution analysis

To calculate sample quantitation limits: (CRQL * Dilution Factor) Revised 09/99

## DATA SUMMARY FORM: PESTICIDES AND PCBS

Case #: 31736 SDG : C01K1
Site : ELKTON FARM
Lab. : MITKEM

| Sample Number : | | C01K6 | | C01K7 | | C01K8 | | C01K9 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sampling Location : | | MW3 | | MW4 | | MW5 | | MW6 | | | |
| Field QC: | | | | | | Duplicate(C01K5) | | Field Blank | | | |
| Matrix : | | Water | | Water | | Water | | Water | | | |
| Units : | | ug/L | | ug/L | | ug/L | | ug/L | | | |
| Date Sampled : | | 05/21/2003 | | 05/21/2003 | | 05/21/2003 | | 05/21/2003 | | | |
| Time Sampled : | | 11:00 | | 11:15 | | 09:40 | | 11:45 | | | |
| Dilution Factor : | | 1.0 | | 1.0 | | 1.0 | | 1.0 | | | |
| Pesticide/PCB Compound | CRQL | Result | Flag | Result | Flag | Result | Flag | Result | Flag | Result | Flag |
| alpha-BHC | 0.050 | | | | | | | | | | |
| beta-BHC | 0.050 | | | | | | | | | | |
| delta-BHC | 0.050 | | | | | | | | | | |
| *gamma-BHC (Lindane) | 0.050 | | | | | | | | | | |
| *Heptachlor | 0.050 | | | | | | | | | | |
| Aldrin | 0.050 | | | | | | | | | | |
| Heptachlor epoxide | 0.050 | | | | | | | | | | |
| Endosulfan I | 0.050 | | | | | | | | | | |
| Dieldrin | 0.10 | | | | | | | | | | |
| 4,4'-DDE | 0.10 | | | | | | | | | | |
| *Endrin | 0.10 | | | | | | | | | | |
| Endosulfan II | 0.10 | | | | | | | | | | |
| 4,4'-DDD | 0.10 | | | | | | | | | | |
| Endosulfan sulfate | 0.10 | | | | | | | | | | |
| 4,4'-DDT | 0.10 | | | | | | | | | | |
| *Methoxychlor | 0.50 | | | | | | | | | | |
| Endrin ketone | 0.10 | | | | | | | | | | |
| Endrin aldehyde | 0.10 | | | | | | | | | | |
| alpha-Chlordane | 0.050 | | | | | | | | | | |
| gamma-Chlordane | 0.050 | | | | | | | | | | |
| *Toxaphene | 5.0 | | | | | | | | | | |
| *Aroclor-1016 | 1.0 | | | | | | | | | | |
| *Aroclor-1221 | 2.0 | | | | | | | | | | |
| *Aroclor-1232 | 1.0 | | | | | | | | | | |
| *Aroclor-1242 | 1.0 | | | | | | | | | | |
| *Aroclor-1248 | 1.0 | | | | | | | | | | |
| *Aroclor-1254 | 1.0 | | | | | | | | | | |
| *Aroclor-1260 | 1.0 | | | | | | | | | | |

CRQL = Contract Required Quantitation Limit *Action Level Exists SEE NARRATIVE FOR CODE DEFINITIONS

To calculate sample quantitation limits: (CRQL * Dilution Factor) Revised 09/99

# Appendix C

Tentatively Identified Compounds

1G

EPA SAMPLE NO.

C01K6

# SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
# TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: MITKEM CORPORATION Contract: 68W03023

Lab Code: MITKEM Case No.: 31736 SAS No.: _____ SDG No.: C01K1

Matrix: (soil/water) WATER Lab Sample ID: B0908-06B

Sample wt/vol: 1000 (g/mL) ML Lab File ID: S3C4119

Level: (low/med) LOW Date Received: 05/22/03

% Moisture: _____ Decanted: (Y/N)___ Date Extracted: 05/27/03

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 06/10/03

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Extraction: (Type) CONT

Number TICs found: 2 CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L

| | CAS NUMBER | COMPOUND NAME | RT | EST. CONC. | Q |
|---|---|---|---|---|---|
| 1. | | UNKNOWN | 19.61 | 3 | J |
| 2. | 123-95-5 | OCTADECANOIC ACID, BUTYL EST | 21.07 | 2 | NJ |
| 3. | | | | | |
| 4. | | | | | |
| 5. | | | | | |
| 6. | | | | | |
| 7. | | | | | |
| 8. | | | | | |
| 9. | | | | | |
| 10. | | | | | |
| 11. | | | | | |
| 12. | | | | | |
| 13. | | | | | |
| 14. | | | | | |
| 15. | | | | | |
| 16. | | | | | |
| 17. | | | | | |
| 18. | | | | | |
| 19. | | | | | |
| 20. | | | | | |
| 21. | | | | | |
| 22. | | | | | |
| 23. | | | | | |
| 24. | | | | | |
| 25. | | | | | |
| 26. | | | | | |
| 27. | | | | | |
| 28. | | | | | |
| 29. | | | | | |
| 30. | | | | | |

1G

EPA SAMPLE NO.

C01K8

# SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
# TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: MITKEM CORPORATION Contract: 68W03023

Lab Code: MITKEM Case No.: 31736 SAS No.: _____ SDG No.: C01K1

Matrix: (soil/water) WATER Lab Sample ID: B0908-08B

Sample wt/vol: 1000 (g/mL) ML Lab File ID: S2D4852

Level: (low/med) LOW Date Received: 05/22/03

% Moisture: _____ Decanted: (Y/N)___ Date Extracted: 05/27/03

Concentrated Extract Volume: 1000(uL) Date Analyzed: 06/13/03

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Extraction: (Type) CONT

Number TICs found: 1

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

| | CAS NUMBER | COMPOUND NAME | RT | EST. CONC. | Q |
|---|---|---|---|---|---|
| 1. | | UNKNOWN | 8.12 | 2 | J |
| 2. | | | | | |
| 3. | | | | | |
| 4. | | | | | |
| 5. | | | | | |
| 6. | | | | | |
| 7. | | | | | |
| 8. | | | | | |
| 9. | | | | | |
| 10. | | | | | |
| 11. | | | | | |
| 12. | | | | | |
| 13. | | | | | |
| 14. | | | | | |
| 15. | | | | | |
| 16. | | | | | |
| 17. | | | | | |
| 18. | | | | | |
| 19. | | | | | |
| 20. | | | | | |
| 21. | | | | | |
| 22. | | | | | |
| 23. | | | | | |
| 24. | | | | | |
| 25. | | | | | |
| 26. | | | | | |
| 27. | | | | | |
| 28. | | | | | |
| 29. | | | | | |
| 30. | | | | | |

# Appendix D

Chain-of-Custody Records

# USEPA Contract Laboratory Program
# Organic Traffic Report & Chain of Custody Record

| | |
|---|---|
| Case No: | 31736 |
| DAS No: | R31583 |

R

| | |
|---|---|
| Region: | 3 |
| Project Code: | |
| Account Code: | 02T03N50102D037ZLA00 |
| CERCLIS ID: | MDD985407196 |
| Spill ID: | 037Z |
| Site Name/State: | ELKTON FARM/MD |
| Project Leader: | Alex Cox |
| Action: | Preliminary Assessment |
| Sampling Co: | MDE |

| | |
|---|---|
| Date Shipped: | 5/21/2003 |
| Carrier Name: | FedEx |
| Airbill: | 840878239283 |
| Shipped to: | Mitkem Corporation<br>175 Metro Center Blvd.<br>Warwick RI 02886<br>(401) 732-3400 |

**Chain of Custody Record**

| Relinquished By | (Date / Time) | Received By | (Date / Time) |
|---|---|---|---|
| 1 | | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |

Sampler Signature:

| ORGANIC SAMPLE No. | MATRIX/ SAMPLER | CONC/ TYPE | ANALYSIS/ TURNAROUND | TAG No./ PRESERVATIVE/ Bottles | STATION LOCATION | SAMPLE COLLECT DATE/TIME | | INORGANIC SAMPLE No. | QC Type |
|---|---|---|---|---|---|---|---|---|---|
| C01K1 | Ground Water/ Gifawossen Tefera | L/G | BNA (21), PEST (21), VOA_ (21) | 1285 (Ice Only), 1286 (Ice Only), 1287 (HCL), 1288 (HCL) (4) | GWT1 | S: 5/21/2003 | 9:30 | MC01K1 | -- |
| C01K2 | Ground Water/ Brian Dietz | L/G | BNA (21), PEST (21), VOA_ (21) | 1293 (Ice Only), 1294 (Ice Only), 1295 (HCL), 1296 (HCL) (4) | GWT2 | S: 5/21/2003 | 10:00 | MC01K2 | -- |
| C01K3 | Ground Water/ Gifawossen Tefera | L/G | BNA (21), PEST (21), VOA_ (21) | 1301 (Ice Only), 1302 (Ice Only), 1303 (HCL), 1304 (HCL) (4) | GWT3 | S: 5/21/2003 | 10:30 | MC01K3 | -- |
| C01K4 | Ground Water/ Dixon Wood | L/G | BNA (21), PEST (21), VOA_ (21) | 1309 (Ice Only), 1310 (Ice Only), 1311 (HCL), 1312 (HCL) (4) | MW1 | S: 5/21/2003 | 8:50 | MC01K4 | -- |
| C01K5 | Ground Water/ Dixon Wood | L/G | BNA (21), PEST (21), VOA_ (21) | 1317 (Ice Only), 1318 (Ice Only), 1319 (HCL), 1320 (HCL) (4) | MW2 | S: 5/21/2003 | 9:40 | MC01K5 | -- |
| C01K6 | Ground Water/ Dixon Wood | L/G | BNA (21), PEST (21), VOA_ (21) | 1326 (Ice Only), 1327 (Ice Only), 1328 (Ice Only), 1329 (Ice Only), 1330 (Ice Only), 1331 (Ice Only), 1332 (HCL), 1333 (HCL), 1334 (HCL), 1335 (HCL), 1336 (HCL), 1337 (HCL) (12) | MW3 | S: 5/21/2003 | 11:00 | MC01K6 | MS/MSD |
| C01K7 | Ground Water/ Brian Dietz | L/G | BNA (21), PEST (21), VOA_ (21) | 1345 (Ice Only), 1346 (Ice Only), 1347 (HCL), 1348 (HCL) (4) | MW4 | S: 5/21/2003 | 11:15 | MC01K7 | -- |
| C01K8 | Ground Water/ Dixon Wood | L/G | BNA (21), PEST (21), VOA_ (21) | 1353 (Ice Only), 1354 (Ice Only), 1355 (HCL), 1356 (HCL) (4) | MW5 | S: 5/21/2003 | 9:40 | MC01K8 | Field Duplicate OF MW-2 |

| Shipment for Case Complete? Y | Sample(s) to be used for laboratory QC: | Additional Sampler Signature(s): | Chain of Custody Seal Number: |
|---|---|---|---|
| | C01K6 | | |

Analysis Key: Concentration: L = Low, M = Low/Medium, H = High Type/Designate: Composite = C, Grab = G Shipment Iced? _____

BNA = CLP TCL Semivolatiles, PEST = CLP TCL Pesticide/PCBs, VOA_ = CLP TCL Volatiles (AQUEOUS)

**TR Number: 3-592370820-052103-0003**

PR provides preliminary results. Requests for preliminary results will increase analytical costs.

Send Copy to: Sample Management Office, 2000 Edmund Halley Dr., Reston, VA. 20191-3400 Phone 703/264-9348 Fax 703/264-9222

**REGION COPY**

# USEPA Contract Laboratory Program
# Organic Traffic Report & Chain of Custody Record

| | |
|---|---|
| Case No: | 31736 |
| DAS No: | R31583 |

R

| | |
|---|---|
| Region: | 3 |
| Project Code: | |
| Account Code: | 02T03N50102D037ZLA00 |
| CERCLIS ID: | MDD985407196 |
| Spill ID: | 037Z |
| Site Name/State: | ELKTON FARM/MD |
| Project Leader: | Alex Cox |
| Action: | Preliminary Assessment |
| Sampling Co: | MDE |

| | |
|---|---|
| Date Shipped: | 5/21/2003 |
| Carrier Name: | FedEx |
| Airbill: | 840878239283 |
| Shipped to: | Mitkem Corporation<br>175 Metro Center Blvd.<br>Warwick RI 02886<br>(401) 732-3400 |

**Chain of Custody Record**

| Relinquished By (Date / Time) | Received By (Date / Time) |
|---|---|
| 1 | |
| 2 | |
| 3 | |
| 4 | |

**Sampler Signature:**

| ORGANIC SAMPLE No. | MATRIX/ SAMPLER | CONC/ TYPE | ANALYSIS/ TURNAROUND | TAG No./ PRESERVATIVE/ Bottles | STATION LOCATION | SAMPLE COLLECT DATE/TIME | | INORGANIC SAMPLE No. | QC Type |
|---|---|---|---|---|---|---|---|---|---|
| C01K9 | Ground Water/ Chris Hartman | L/G | BNA (21), PEST (21), VOA_ (21) | 1361 (Ice Only), 1362 (Ice Only), 1363 (HCL), 1364 (HCL) (4) | MW6 | S: 5/21/2003 | 11:45 | MC01K9 | Field Blank |
| C01L0 | Ground Water/ Chris Hartman | L/G | VOA_ (21) | 1368 (HCL), 1369 (HCL) (2) | MW7 | S: 5/21/2003 | 10:00 | | Trip Blank |

| | | | |
|---|---|---|---|
| Shipment for Case Complete? Y | Sample(s) to be used for laboratory QC: C01K6 | Additional Sampler Signature(s): | Chain of Custody Seal Number: |
| Analysis Key: | Concentration: L = Low, M = Low/Medium, H = High | Type/Designate: Composite = C, Grab = G | Shipment Iced? _____ |

BNA = CLP TCL Semivolatiles, PEST = CLP TCL Pesticide/PCBs, VOA_ = CLP TCL Volatiles (AQUEOUS)

**TR Number: 3-592370820-052103-0003**

**PR provides preliminary results. Requests for preliminary results will increase analytical costs.**

Send Copy to: Sample Management Office, 2000 Edmund Halley Dr., Reston, VA. 20191-3400 Phone 703/264-9348 Fax 703/264-9222

**REGION COPY**

# U.S. EPA Region III Sample Scheduling Request Form

| | | | |
|---|---|---|---|
| RAS CASE No: CT1809 /31736 | DAS No: | | NSF No: |
| Date: 5/14/03 | Data Validation Level: M3, IM2 | | EPA Lab Reply: |
| Site Name: Elkton Farm | | | QAPP/SAP Info : |
| Address: 183 Zeitler Road | City: Elkton | | State: Maryland |
| Latitude: | Longitude: | | Anal +Val Data TAT: 60 Days |
| Program: CERCLA | CERCLIS No: MDD985407196 | | Activity: SI |
| Account No: 03T03N50102D037ZLA00 | Operable Unit: 00 | | Spill ID: 037Z |
| Preparer: Chris Hartman | RPM/PO:Lorie Baker | | Site Leader: Alex Cox |
| Phone: 410-537-3453 | Phone: 215-814-3355 | | Phone: 410-537-3493 |
| FAX: 410-537-3472 | FAX: 215-814-3001 | | FAX: 410-537-3472 |
| E-mail: chartman@mde.state.md.us | E-mail: baker.lorie@epa.gov | | E-mail: acox@mde.state.md.us |
| EPA CO: | Contract Type: | Prime: MDE | Sub: |
| Lab Assignment Date: | Analytical TAT: 30 Days | | Ship Date From: 5/19/03 |
| Organic Lab: | | | Ship Date To: 5/23/03 |
| Inorganic Lab: | | | Carrier: |

| SAMPLES | METHOD | PARAMETER | MATRIX |
|---|---|---|---|
| 9 | OLM04.3 | TCL | AQ |
| 1 | OLM04.3 | VOC | AQ |
| 12 | ILM05.2 | ICP-AES TAL+CN+Hg | AQ |
| 9 | ILM05.2 | ICP-AES TAL (DM) | AQ |
| | | | |
| | | | |

Notes:
1. Quantitation Limits and Quality Control requirements other than those specified in the method or SOW must be included on separate sheet.
2. QC filed samples must be included as part of the total number of samples.
3. Data validation levels M3 and IM2 require justification.

Special Instructions:

# Appendix E

Laboratory Case Narrative

**SDG Narrative**

Mitkem Corporation submits the enclosed data package in response to USEPA Case # 31736 and SDG# C01K1. Analyses were performed for ten aqueous samples that were received on May 22, 2003. The analyses were performed under USEPA Contract # 68-W-03-023. Please note that the coolers received were measured at 3°C.

One of two VOA vials was received broken for sample C01K1. There is sufficient sample volume for the initial analysis and re-analysis. Per the Region, proceed with analysis of the sample.

Sample C01K4 was received with sediment in all VOA vials and sample C01K5 was received with sediment in one of two VOA vials. The sediment may interfere with surrogate recoveries. Per the Region, proceed with analysis of the samples.

The following samples are submitted in this data package:

| Client ID | Lab ID | Analysis | VOA pH |
|---|---|---|---|
| C01K1 | B0908-01A | V | <2 |
| C01K1 | B0908-01B | S, P | |
| C01K1DL | B0908-01BDL | P | |
| C01K2 | B0908-02A | V | <2 |
| C01K2 | B0908-02B | S, P | |
| C01K2DL | B0908-02BDL | P | |
| C01K3 | B0908-03A | V | <2 |
| C01K3 | B0908-03B | S, P | |
| C01K4 | B0908-04A | V | <2 |
| C01K4 | B0908-04B | S, P | |
| C01K5 | B0908-05A | V | <2 |
| C01K5 | B0908-05B | S, P | |
| C01K6 | B0908-06A | V | <2 |
| C01K6MS | B0908-06AMS | V | <2 |
| C01K6MSD | B0908-06AMSD | V | <2 |
| C01K6 | B0908-06B | S, P | |
| C01K6MS | B0908-06BMS | S, P | |
| C01K6MSD | B0908-06BMSD | S, P | |
| C01K7 | B0908-07A | V | <2 |
| C01K7 | B0908-07B | S, P | |
| C01K8 | B0908-08A | V | <2 |
| C01K8 | B0908-08B | S, P | |
| C01K9 | B0908-09A | V | <2 |
| C01K9 | B0908-09B | S, P | |
| C01L0 | B0908-10A | V | <2 |

V = Volatiles

S = Semivolatiles
P = Pesticides/PCB

The analyses were performed using USEPA CLP Multi-Media. Multi-Concentration (OLM04.2) protocols. The analyses were performed with strict adherence to the SOW with the following exceptions and observations:

1. Overall Observation:

Where needed, manual integrations were performed to improve data quality. The corrections were reviewed and associated hardcopies generated and reported as required. Manual integrations are coded to provide the data reviewer justification for such action. The codes are labeled on the ion chromatogram signal (GC/MS signal) and chromatogram for GC based analysis as follows:

- M1 peak tailing or fronting.
- M2 peak co-elution.
- M3 rising or falling baseline.
- M4 retention time shift.
- M5 miscellaneous – under this category, the justification is explained.

2. Volatile Analysis:

Trap used for instrument V1: OI Analytical #10 trap containing 8 cm each of Tenax, silica gel and carbon molecular sieve.

GC column used: 30 m x 0.25 mm id (1.4 um film thickness) DB-624 capillary column.

Surrogate recoveries were within the QC limits.

Matrix spike and matrix spike duplicate were performed on sample C01K6. Spike recoveries and replicate RPDs were within the advisory QC limits.

No unusual observation was made for the analysis.

3. Semivolatile Analysis:

GC column: 30 m x 0.25 mm id (0.5 um film thickness) DB-5MS capillary column

Surrogate recoveries were within the QC limits.

Matrix spike and matrix spike duplicate were performed on sample C01K6. Spike recoveries were within the advisory QC limits with the exception of high recovery of 4-nitrophenol in both the matrix spike and matrix spike duplicate. Replicate RPDs were within the advisory QC limits.

No other unusual observation was made for the analysis.

4. Pesticides/PCB Analysis:

GC column used: 30 m x 0.53 mm id (0.5 um film thickness) CLPPest and 30 m x 0.53 mm id (0.42 um film thickness) CLPPestII megabore columns

Surrogate recoveries were within the QC limits.

Matrix spike and matrix spike duplicate were performed on sample C01K6. Spike recoveries were within the advisory QC limits. Replicate RPDs were within the advisory QC limits with the exception of 4,4'-DDT.

There are two huge tailing peaks in samples C01K1 and C01K2. The two peaks were unaffected by repeat florisil cleanups. Due to the peaks' broadness, one peak fell within the retention time window for heptachlor expoxides. Upon re-analysis at dilution, the peak fell out of the heptachlor epoxide's retention time window.

No unusual observation was made for the analysis.

All of the submittals to the region are originals other than logbook pages. Photocopies of logbook pages are included, with the originals maintained on file at the laboratory. Tunes, calibration verifications and initial calibrations that are shared among several cases are photocopies indicating the location of the originals.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on diskette has been authorized by the laboratory manager or his/her designee, as verified by the following signature.

Agnes Ng
CLP Project Manager
06/20/03

**Agnes Ng**

**From:** "Sturdavant, Holly" <Holly.Sturdavant@dyncorp.com>
**To:** "Agnes Ng (E-mail)" <ang@mitkem.com>
**Sent:** Friday, June 20, 2003 2:20 PM
**Subject:** Region 03 | Case 31736 | MITKEM | Issue Multiple |

Holly Rogers Sturdavant
CSC
CLP Coordinator for Regions 3, 7, & 9
703-264-9526
holly.sturdavant@dyncorp.com or holly.rogers@dyncorp.com
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-----Original Message-----
From: Sturdavant, Holly
Sent: Tuesday, May 27, 2003 9:28 AM
To: Agnes Ng (E-mail); Kin Chiu (E-mail)
Cc: Betty Ann Jeffery (E-mail); Dan Slizys (E-mail); John Kwedar (E-mail); Khin-Cho Thaung (E-mail)
Subject: Region 03 | Case 31736 | MITKEM | Issue Multiple | FINAL

Agnes,

Following are the resolutions from Region 3 regarding the lab's issues for Case 31736.

Issue 1: One of the VOA vials received for sample C01K1 arrived broken. The lab states that there should be enough sample remaining for the initial analysis and the re-analysis (if required). This issue can be resolved using Region 3 standard answers.
Resolution 1: In accordance with previous direction from Region 3, the lab will note the issue in the Case/SDG Narrative and proceed with the analysis of the sample. If re-extraction/reanalysis is necessary, the lab will contact the SMO coordinator and wait for a resolution.

Issue 2: Sample C01K4 has sediment in all of the VOA vials received. Sample C01K5 has sediment in one of the two vials the lab received. The lab is afraid that the sediment might interfere with surrogate recoveries.
Resolution 2: Per Region 3, the Region recognizes the lab's concern that there may be a compromise of the surrogates and other QC due to the presence of sediment in the vials. However, the Region requests that the lab proceed with the analysis of sample C01K5, using the vial without sediment if possible.

Please let me know if you have any other questions or problems.

000595

Thanks,
Holly

Holly Rogers Sturdavant
CSC
CLP Coordinator for Regions 3, 7, & 9
703-264-9526
holly.sturdavant@dyncorp.com or holly.rogers@dyncorp.com

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-----Original Message-----
From: slizys.dan@epamail.epa.gov [mailto:slizys.dan@epamail.epa.gov]
Sent: Tuesday, May 27, 2003 6:46 AM
To: Sturdavant, Holly
Cc: Betty Ann Jeffery (E-mail); John Kwedar (E-mail); Khin-Cho Thaung (E-mail)
Subject: Re: NEW ISSUE | Case 31736 | MITKEM | Issue Multiple

Holly,

Issue 1. Please respond as per Region III standard response.

Issue 2. The region recognizes the lab's concern that there may be a compromise of the surrogates and other QC due to the presence of sediment in the vials. However, the lab is requested to proceed with the analysis of samples.

From: "Sturdavant, Holly"<Holly.Sturdavant@dyncorp.com>
To: Betty Jeffery/ESC/R3/USEPA/US@EPA, Dan Slizys/ESC/R3/USEPA/US@EPA, John Kwedar/ESC/R3/USEPA/US@EPA, Khin-Cho Thaung/ESC/R3/USEPA/US@EPA
cc:
Subject: NEW ISSUE | Case 31736 | MITKEM | Issue Multiple
05/23/2003 05:00 PM

The lab is still waiting on a resolution to this issue. Please advise on how the lab should proceed.

Thanks,
Holly

Holly Rogers Sturdavant
CSC
CLP Coordinator for Regions 3, 7, & 9
703-264-9526
holly.sturdavant@dyncorp.com or holly.rogers@dyncorp.com

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-----Original Message-----
From: Sturdavant, Holly
Sent: Thursday, May 22, 2003 4:17 PM
To: Betty Ann Jeffery (E-mail); Dan Slizys (E-mail); John Kwedar (E-mail); Khin-Cho Thaung (E-mail)
Subject: NEW ISSUE | Case 31736 | MITKEM | Issue Multiple

Following is an email from MITKEM. The lab has the following issues for samples received for this Case.

Issue 1: One of the VOA vials received for sample C01K1 arrived broken. The lab states that there should be enough sample remaining for the initial analysis and the re-analysis (if required). This issue can be resolved using Region 3 standard answers.

Issue 2: Sample C01K4 has sediment in all of the VOA vials received. Sample C01K5 has sediment in one of the two vials the lab received. The lab is afraid that the sediment might interfere with surrogate recoveries.

Please advise on how the lab should proceed regarding issue 2.

Thanks,
Holly

Holly Rogers Sturdavant
CSC
CLP Coordinator for Regions 3, 7, & 9
703-264-9526
holly.sturdavant@dyncorp.com or holly.rogers@dyncorp.com

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-----Original Message-----
From: Agnes Ng [mailto:ang@mitkem.com]
Sent: Thursday, May 22, 2003 2:41 PM
To: Sturdavant, Holly
Subject: Case 31736

Hi Holly,

1. One of two VOA vials were received broken for sample C01K1. There should be enough sample remaining for the initial analysis and any re-analysis. Re-analysis will be from remaining vial.

2. Samples C01K4 had sediment in all VOA vials. Sample C01K5 had sediment in one of two vials. The sediment might interfere with surrogate recoveries.

Thanks,
Agnes Ng
CLP Project Manager
ph: 401-732-3400
fax: 401-732-3499